

Aware

Spring 1997

Aware Report is an administrative document, issued by the National Oceanic and Atmospheric Administration, for the information and use of the Agency and the natural hazard community.

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From the Director's Corner

In The Spotlight

For the last several months, the National Weather Service (NWS) has received almost constant media attention. Much of this has centered around what we do well and are proud of: issuing warnings and forecasts to help emergency managers, local officials, and the public to respond properly to extreme events. More and more attention is being focused on our efforts to continue to provide the critical information that the Nation expects under the severe constraints of the present budgetary climate.

Since January, the country has been beset by a multitude of natural disasters, including the Pacific Northwest floods, the Arkansas tornadoes, the Ohio Valley floods, the blizzards in the upper Midwest and New England, and the massive floods along the Red River in the North. Shortly before this issue of the *Aware Report* went to press, the city of Grand Forks, ND, was under 10 feet of water. The city's downtown buildings succumbed to fires that could not be extinguished due to the flooding. During each of these disasters, the NWS was at the forefront, providing accurate and timely warnings and forecasts essential for preparedness efforts and timely response actions.

During the National Oceanic and Atmospheric Administration's (NOAA) Northwest Constituent Workshop, an individual remarked that the floods in the Northwest could have been 10 times more costly. NWS's improved warnings, with longer lead times, enabled water managers to draw down reservoirs in response to predicted flood crests. For our folks in Grand Forks, meeting the challenge meant transferring to other offices or toughing it out in the local office, using generator power, chemical toilets, and cots, while their families evacuated and the flood waters ravaged their homes.

As we continue our round-the-clock vigil, extreme budget pressures are forcing us to make difficult decisions. We have been forced to eliminate 200 positions in our management structure and in the National Centers for Environmental Prediction (NCEP). Training and travel have been sharply reduced or curtailed. We have let vacancies remain open and reduced spare parts inventories. These economies have put a tremendous strain on our people.

Our partners in the hazards community share our fiscal problems. The Federal Emergency Management Administration (FEMA) does not have the resources to maintain the National Warning System (NAWAS). FEMA has asked NWS and emergency managers to help trim NAWAS costs 5 percent each year. The U.S. Geological Survey cannot continue to support its eroding stream gage network and, as a result, we have lost more than 300 gages in the last 10 years.

This Nation cannot afford the continued weakening of the infrastructure necessary to our warning and forecast programs. In response, the Subcommittee for Natural Disaster Reduction of the White House's Office of Science and Technology Policy is calling for an interagency natural disaster reduction initiative.

A strong NOAA and all of its components, including the NWS, is central to any initiative aimed at reducing the costs of lives and property to extreme hydrometeorological events. As our actions in Grand Forks attest, our people are committed to their work. Now they need support to continue to provide what our citizens expect.

Louis W. Uccellini, Director, Office of Meteorology

Science and Service

Customer Service

Convective Watch Decentralization Plan Complete, Ready for Phase-In

The Convective Watch Decentralization (CWD) Plan was completed in January 1997. It can be downloaded from the Office of Meteorology (OM) Internet Home Page. The plan allows for the migration of convective (severe thunderstorm and tornado) watches from the Storm Prediction Center (SPC) to Weather Forecast Offices (WFOs) during the next four years. Rather than transferring watch responsibility all at once, the plan migrates responsibility in 4 phases. Each phase lasts about 1 year. Each phase is predicated on the fulfillment of certain requirements, including advances in technologies, training, and communications capabilities.

Phase I: Watch Changes Shape

In 1998, Phase I starts; the convective watch geometry changes from a parallelogram to a polygon of not more than 6 sides. The watch usually covers county warning forecast areas of multiple Next Generation Weather Radar (NEXRAD) National Weather Service Forecast Offices (NWSFOs) and NEXRAD Weather Service Offices (NWSOs). Phase I also introduces a product issued by NWSFOs and NWSOs to clear watches—Watch County Notification. This product will allow external customers and the SPC to update watch information based on Universal Geographic Codes. Phase I assumes the availability of voice conferencing capability equivalent to the NAWAS upgrade at SPC and future WFOs. It assumes computer software at the SPC, National Centers for Environmental Prediction Central Operations, and future WFOs to transmit and process watch information. Service evaluation of Phase I operations will enable NWS senior management to determine whether to proceed to Phase II.

Phase II: Risk Reduction

The goal of Phase II is to reduce risks for the initial decentralized environment. A group of contiguous future WFOs (which have Advanced Weather Interactive Processing System [AWIPS] capabilities needed for convective watches) will take part. These offices will generate actual watches in real-time, supported by narrative, graphical, probabilistic guidance information and guidance watches from the SPC. Phase II assumes SPC will provide graphical and/or narrative, probabilistic convective watch guidance (including the guidance watch). This phase also assumes AWIPS is successfully implemented at WFOs and that they have sufficient power to

process data sets from multiple sources, to ingest and display graphical, probabilistic convective watch information from the SPC, to ingest and process a guidance watch from the SPC, to perform intersite coordination, and to communicate WFO watch products externally. This phase also requires that WFO forecasters complete specific convective watch training, as designed by the Science Application Team (a detailed Training Plan is being released by OM in the spring of 1997). Finally, the Meteorologist in Charge (MIC) at each future WFO must confirm that the office's forecasters are ready to assume watch responsibility. Evaluating Phase II will supply information needed for NWS senior management to determine whether to proceed to Phase 3: the initial decentralized environment.

Phase III: Initial Decentralization

In Phase III, Initial Decentralization, WFOs will generate convective watches based on graphical and/or narrative, probabilistic guidance from the SPC, an SPC guidance watch product, NCEP model guidance, and locally-generated diagnostic and observational information. As with the other phases, success here will determine moving to Phase IV.

Phase IV: Full Decentralization

Phase IV, full implementing decentralization, will use gridded, graphical, probabilistic guidance from NCEP (SPC, in particular). Gridded information will flow into the WFO AWIPS. The system will create draft watch products using product generators with locally adaptable parameters. Phase IV assumes SPC develops gridded information that all AWIPS

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Aware Report Online: www.nws.noaa.gov/om/aware.pdf

sites can transmit for processing. NWS will have ongoing service evaluation. Users can expect iterative improvements in the convective watch program in Phase IV and beyond.

Exactly when all this will happen depends on when required technologies are delivered and on training and communications capabilities. Current plans call for a Phase I Field Test in June with delivery at the end of this year. These plans have been slowed by delays in implementing hardened NAWAS-type voice communications and coordination technology throughout NWS. At best, if NWS can secure such a technology and put it into place by the end of 1997, the program will be slipped about 8 months.

In the meantime, NWS is making substantial efforts to complete corollary plans, including the CWD Training Plan, the Product Format Plan, and the Service Evaluation Plan. Decentralization teams, groups of field personnel committed to authorship of the CWD, are generating these plans. The Science Application team already has delivered a draft Training Plan, the first review of which is done. A final Training Plan is due in May 1997. This plan will describe what information field forecasters need to learn for the watch function. The field also is reviewing a draft Service Evaluation Plan, scheduled for delivery late this spring. A draft Product Format Plan should be released for review by the end of March; a final plan is due by late spring.

Bill Alexander, Mesoscale Manager

Broad-Based Team to Review Severe Thunderstorm Warning Criteria

For at least the past decade, users have expressed concern that the criteria for designating thunderstorms "severe" is too low. During the past few months, the large number of severe thunderstorm warnings (product category SVR) has affected our customers' ability to use the new Emergency Alert System (EAS). Because of the increasing volume of SVRs, many of our customers have decided not to receive NWS products, affecting NWS's ability to disseminate timely and effective warnings.

Because reduced use of NWS products impacts the NWS mission, this issue was a topic of discussion in the Fall 1996 Meteorological Services Division (MSD) Conference. Further, numerous questions about SVR criteria were raised to OM this spring through the Director's Advisory Committee on Forecast Operations. OM Services Division Director Richard Przywarty assigned the SVR criteria topic as an MSD Conference Action Item to the Customer Service Core (OM11), and Donald Wernly, Chief, Customer Service, has asked Bill Alexander to follow up. OM, therefore, is facilitating a team to address the problem. James Purpura, Warning Coordination Meteorologist (WCM) at NWSFO Norman, will lead the team.

The issue of what constitutes a severe thunderstorm crosses multiple disciplines. To ensure a balanced approach, OM has asked each Region to select a Science Operations Officer (SOO) and a WCM as team members. In addition, we have asked for a representative from the SPC, Aviation Weather Center, Office of Atmospheric Research, NWS Training Center, and the Operational Support Facility/Operations Training Branch (OSF/OTB). We are also asking for representatives from the U.S. Centers for Disease Control and Prevention, the Center for Operational Meteorology, Education and Training (COMET), the American Meteorological Society's Board of Broadcast Meteorology, the American Association of Wind Engineers, the U.S. Air Force, the Federal Aviation Administration, Aircraft Owners and Pilots Association, the Insurance Institute for Property Loss Reduction, and the Reinsurance Association of America. While this seems a rather large team, such diverse input is essential to addressing the collateral issues of science, social science, and risk management. Already, we in OM have taken note of the extensive commentary regarding this issue in electronic mail and on the Internet.

I have asked Jim Purpura to provide team recommendations to OM by July 15. Based on those recommendations and feedback from the Customer Advisory Panel (membership of which spans the NWS customer base), OM will recommend changes to severe thunderstorm warning (and therefore, severe thunderstorm watch) criteria.

Bill Alexander, Mesoscale Manager

Post-Storm Data Collection Simplified with Civil Air Patrol Agreement

Quite some years ago, the NWS entered into a Memorandum of Understanding (MOU) with the Civil Air Patrol (CAP), a civilian adjunct to the Air Force, to collect post-storm data. Since then, the MOU has been updated several times, most recently in the past several months.

This MOU has provided a cost-effective way for NWS personnel to assess post-storm damage via overflights. In the past year, other NOAA line offices and other Federal agencies have started using CAP as an overflight resource. Multi-agency response to recent disasters, such as hurricanes, often has resulted in numerous response teams collecting similar information. When the CAP agreement expired in December 1995, efforts began to broaden its scope. CAP would help save government resources and lessen the impact of numerous organizations on a stricken area.

OM determined that the Office of the Federal Coordinator for Meteorological Services and Supporting Research (OFCM) would be the best NOAA facilitator of the MOU.

OFCM could serve as a clearinghouse for response to hydrometeorological events that resulted in disasters; OFCM also would work with CAP to arrange support. Within the past few months, Air Force and NWS legal counsel have been refining the MOU to offer liability protection while being flexible and responsive. By the time you read this, the new CAP MOU will have been signed. It will be valid for 10 years.

The CAP MOU allows NWS access to CAP aircraft for a variety of services. In some cases, CAP may be called upon to provide transport. Generally, NWS will ask the CAP to fly over disaster-stricken areas. Here are some answers to frequently asked questions about the CAP MOU:

- *Who may use the CAP?* It may be used by NWS and other agencies associated with the Post-Storm Data Acquisition working group of the Federal Committee for Meteorological Services and Supporting Research.
- *Who pays for CAP services?* Generally, working group agencies contribute to a fund maintained by OFCM.
- *What are the guidelines for requesting CAP assistance?* OM, in conjunction with OFCM, approves CAP assistance to hydrometeorological disasters that require a Presidential disaster declaration; also eligible are events that do not require a Presidential disaster declaration but are sufficiently significant that the Deputy Assistant Administrator for Operations would be a signatory to a Service Assessment. In other situations, the MIC/Hydrologist in Charge (HIC) could request CAP assistance by using NWS Regional funds.

Bill Alexander, Mesoscale Manager

Public Watch Narrative Updated to Reflect Customer Requests

When OM held its first Customer Workshop in the spring of 1996, we told our customers that we would respond to what they had to say. We helped them set up a Customer Advisory Panel to interact with the NWS and ensure their Federal government met their needs.

A dramatic result of that effort is the updated format of the SPC Convective Watch Narrative. This public severe thunderstorm/tornado watch product has looked pretty much the same since the early 1970s. At the request of our customers, OM is revising the narrative to make it more readable and useful. In short, the Public Watch Narrative format is being revised to make it more useful and understandable by customers. Changes include:

- Beginning and ending times of the watch
- Putting non-technical information near the top of the product, separate from technical information
- Identifying parts of the watch with key words: "DISCUSSION," "OTHER WATCH INFORMATION," "AVIATION," instead of "A...", "C...", "D...", etc.
- Using plain language to describe the potential for hail size and thunderstorm wind
- Using the more accurate and descriptive term "Storm Motion Vector" to replace "Mean Wind Vector"
- Placing latitudes/longitudes of watch-box end-points at the bottom and top of the product, allowing customers to plot the box on software.

The changes went into effect on April 15. The format is consistent with Phase I of the Convective Watch Decentralization. Here is an example:

PUBLIC WATCH NARRATIVE (AFOS PRODUCT CATEGORY SEL)

MKCSEL1 312,0945 342,0911 320,0911 290,0945
WWUS9 KMKC 220552
MKC WW 220522
TXZ000-LAZ000-ARZ000-221200-

BULLETIN - IMMEDIATE BROADCAST REQUESTED
TORNADO WATCH NUMBER 1091
STORM PREDICTION CENTER NORMAN OK
1205 PM CDT SUN MAY 26 1996

THE STORM PREDICTION CENTER HAS ISSUED A TORNADO WATCH FOR PORTIONS OF
NORTHERN AND CENTRAL LOUISIANA
SOUTHEAST ARKANSAS
SOUTHEAST TEXAS
AND ADJACENT COASTAL WATERS

EFFECTIVE THIS TUESDAY MORNING FROM 1 AM UNTIL 7 AM CDT.
{option for enhanced wording to describe particularly dangerous situation}
TORNADOES...HAIL TO 1 3/4 INCHES IN DIAMETER AND THUNDERSTORM WIND GUSTS TO 80 MPH ARE POSSIBLE IN THESE AREAS {text variable according to situation}.

THE TORNADO WATCH AREA IS ALONG AND 80 STATUTE MILES NORTH AND SOUTH OF A LINE FROM 55 MILES WEST NORTHWEST OF PORT ARTHUR TEXAS TO 65 MILES NORTHEAST OF MONROE LOUISIANA.

REMEMBER...A TORNADO WATCH MEANS CONDITIONS ARE FAVORABLE FOR SEVERE THUNDERSTORMS AND TORNADOES IN AND CLOSE TO THE WATCH AREA. PERSONS IN THESE AREAS SHOULD BE ON THE LOOKOUT FOR THREATENING WEATHER CONDITIONS AND LISTEN FOR LATER STATEMENTS AND POSSIBLE WARNINGS.

OTHER WATCH INFORMATION...{option for "THIS WATCH REPLACES WW NUMBER XXXX"}

DISCUSSION...THE THREAT OF SEVERE THUNDERSTORMS AND ISOLATED TORNADOES IS LIKELY TO INCREASE DURING THE OVERNIGHT HOURS AS VERTICAL SHEAR AND DYNAMIC FORCING ASSOCIATED WITH A SPEED MAXIMUM NOW APPROACHING CENTRAL TEXAS OVERSPREADS A TROPICAL PLUME OF MOISTURE EXTENDING NORTH-NORTHEASTWARD FROM THE FAR WESTERN GULF OF MEXICO.

AVIATION...TORNADOES AND A FEW SEVERE THUNDERSTORMS WITH HAIL SURFACE AND ALOFT TO 1 3/4 INCHES. EXTREME TURBULENCE AND SURFACE WIND GUSTS TO 70 KNOTS. A FEW CUMULONIMBI WITH MAXIMUM TOPS TO 520. STORM MOTION VECTOR 23035.

... GALWAY

"312,0945 342,0911 320,0911 290,0945
NNNN

Bill Alexander, Mesoscale Manager

Automated Emergency Alert System Replaced EBS as of January 1

On January 1, the EAS replaced the Emergency Broadcast System. Some 24,000 radio and broadcast TV outlets now take part. Cable TV facilities are planning to join EAS in July. The Federal Communications Commission (FCC) manages this automated, digital system, with significant support from the NWS and FEMA. As in the old EBS, the NWS is the chief source of EAS severe weather warnings.

NWS enters the EAS, via NOAA Weather Radio's (NWR) digital, Specific Area Message Encoding (NWRSAME) technology. After years of testing, the EAS now uses the NWRSAME's protocols. Media outlets within range of a NWR station can set their EAS equipment to "capture" messages for immediate rebroadcast, such as tornado and flash flood warnings. NWR is also expanding to include the broadcast of non-weather-related emergencies as well. NWR will offer this emerging service in coordination with the local emergency management community and media outlets, as stipulated in local EAS plans.

The EAS could become the most advanced warning system in the world because it can reach virtually everyone through standard media outlets. Like any new system, there are challenges to overcome:

- Unavoidable last-minute training of media and NWS personnel and installation of equipment
- Problems with NWR console-NWRSAME interface equipment design
- Intermittent quality problems with NWR transmitted signal levels causing out-of-spec modulation of voice messages, NWRSAME codes, and the 1050 Hz warning alarm code, particularly noticeable during bad weather

- Misunderstanding of the EAS concept. EAS provides concise, one-time broadcast of life- or property-threatening events. On hearing the EAS, the listener should then turn to further media sources or NWR for more information. EAS does not repeatedly broadcast alerts of the same event, provide detailed information, or information that is not about an immediate threat.

The NWS, the FEMA, the media, and the FCC already are discussing how to solve these problems. The FCC expected that it would take a year's shake-out before planned operations would be fully realized. During this year, the FCC will be studying—and likely agreeing with—new NWS proposals to further standardize and consolidate EAS event codes for all emergencies. This change would have the added benefit of providing NWRSAME-equipped home NWR receivers. With this new service, users could choose to have their NWR alert them only for emergencies that affect their home county. Currently, the 1050 Hz alarm occurs for all receivers within range of the NWR transmitter, typically about 10 counties. The new receivers will cut down on the perception of being over warned.

To help solve problems, Larry Krudwig, NWS's technical expert on EAS and NWRSAME, some NWS staff from the local forecast office and I attended the National Association of Broadcasters convention in Las Vegas in April. We worked closely with the FCC and FEMA to provide EAS and NWR information to convention participants. We also took part in meetings with radio and television broadcasters, engineers, and state EAS chairs to discuss EAS operations.

Rod Becker, Dissemination Services Manager

Under Title of Emergency Management, FEMA Schedules Exercises and Support

FEMA recently distributed copies of their new Comprehensive Exercise Program (CEP) National Exercise Schedule. Historically, FEMA has published a variety of exercise listings and calendars for exercises designed for the emergency management community. The Federal Response Planning Task Force asked FEMA to design a product that would aid long-term planning and budget activities. In response, the Exercises Division is developing a new consolidated National Exercise Schedule as part of the CEP.

The first update, scheduled for March, would provide a schedule for submitting information for future updates. OM is working with Bryan Johnson of FEMA to ensure that

NWS regional and field offices receive updates to the exercise schedule.

Exercise RESPONSE 98

FEMA Headquarters will conduct "Exercise RESPONSE 98," April 20-23, 1998. This Exercise will demonstrate and evaluate Federal and state coordination response mechanisms for a simulated hurricane. Exercise RESPONSE 98 will examine plans, policies, procedures, systems, emergency teams, and facilities that support the target activities listed below:

- Managing response to a potential catastrophic emergency
- Protecting lives and property
- Evacuation management and execution
- Public awareness and notification
- Mitigation actions to ease recovery
- Initial actions for response and recovery from a disaster.

The exercise will allow FEMA to demonstrate procedures that support the Federal Response Plan concept of operations and FEMA's regional supplements to the plan. FEMA will also demonstrate how it will integrate those procedures with state emergency operational plans.

Exercise RESPONSE 98 is unique in that four Canadian Provinces will take part: New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland-Labrador. Canadian participants will test emergency response plans, communications procedures, and coordination mechanisms.

This test hurricane will impact directly on FEMA Regions I and II, which includes Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, and New Jersey. This region includes the metropolitan areas of greater New York City, Hartford, Providence, and Boston. The exercise also will provide an opportunity to develop stronger relationships with the Canadian Maritime and Atlantic Provinces.

NWS will participate at all levels—national, regional, and field. OM and the Techniques Development Laboratory (TDL) will help create the exercise scenario. The Eastern Region will coordinate field participation by the following local NWS offices: Taunton, MA; Gray, ME; Burlington, VT; Albany, NY; Upton, NY; Mt. Holly, NJ; and possibly Caribou, ME. The NWS points of contact for Exercise RESPONSE 98 are Rainer Dombrowsky, W/OM11, 301-713-0090 x116; Dr. Wilson Shaffer, TDL, 301-713-1613; Harvey Thurm, Eastern Region Headquarters, 516-244-0124.

Exercise ILL WIND

This 3-day functional exercise will be conducted September 16-18. Participants will take part from selected Department and agency command centers and from FEMA's Mt. Weather Emergency Assistance Center in Berryville, VA. This exercise will address the threat from terrorism.

Rainer Dombrowsky, WCM Program Manager

NAWAS Upgrade Hurt by Budget Battles

The NAWAS upgrade process has been slowed once again due to the shrinking Federal budget. At the recent National Emergency Managers Association (NEMA) Conference held in Washington, DC, FEMA Director James Lee Witt painted a gloomy picture for the future of NAWAS. Beginning in FY 98, FEMA must trim the NAWAS operating budget by 5 percent. Federal and state users will have to either fund the targeted 100 NAWAS terminals themselves or see them eliminated. Over the next several months, FEMA will ask Federal and state users to once again identify which NAWAS terminals to eliminate. FEMA projects additional cuts of 5 percent per year through FY 02.

Assistant Administrator for Weather Services Dr. Joe Friday and Mr. Witt agreed to work closely with NEMA, National Coordination Council on Emergency Management (NCCEM), and other users of NAWAS to validate the need for an upgraded NAWAS or NAWAS-like technology.

While attending the NEMA Conference, OM met with the State Emergency Management Directors. Following the OM11 briefing to NEMA's Response and Recovery working group, OM formed a subcommittee to assess options to NAWAS. OM's point of contact in NEMA is Lloyd "Gene" Kruse, Deputy Director, Kansas Division of Emergency Management. OM11 also presented a briefing to the NCCEM at their March mid-year Conference. The NCCEM technologies working group assigned Robert Andrews, Emergency Manager for Clark County, NV, as the contact point for conducting a needs and requirements assessment of NAWAS. The proposed assessment will allow Federal and state officials to establish a more cost-effective communications infrastructure and to develop coordination methodologies and protocols.

All four concerned groups have reviewed a draft of the assessment questionnaire, which will be distributed to users in June. Results will be presented in August to NWS and FEMA senior staff as well as to NEMA at its mid-year conference. NCCEM will be formally briefed at its September conference.

Rainer Dombrowsky, WCM Program Manager

Emergency Response Link Aims to Ease Electronic Information Exchange

The National Communications System, (which leads FEMA's Federal Response Plan Emergency Support Function 2), is hosting a pilot program called Emergency Response Link (ERLink). ERLink offers key organizations a way to share information electronically, simplifying disaster response planning and operations.

The emergency response community is a diverse, widely scattered group of Federal, state, and local organizations. The core of the community is 28 Federal Response Plan partners responsible for 12 Emergency Support Functions. ERLink is a collection of communications protocols, information structures, and software tools that use World Wide Web standards for data access and retrieval. ERLink provides a simple "point and click" method of retrieving data ranging from maps and photographs, to computer simulation tools, inventories, databases, and incident and situation reports.

Internet-Based System

ERLink is a controlled access website on the Internet. Developers chose the Internet for its nearly universal reach to emergency managers and disaster responders. The web is a low-cost approach that should reduce the need for system-specific training. This option uses existing infrastructure, allowing users to connect from private networks and dial up from Internet Service Providers.

The main ERLink server hosts the directory/information structure, which mirrors the partnership and functional organization of the Federal Response Plan. A user may point and click to retrieve or upload information about selected events. The main ERLink server also functions as a virtual server for participants that require expanded information sharing capabilities. The virtual server concept provides participants a place to host and share information without incurring the cost to procure, administer, and maintain their own server.

Secured Access Protects Information

Since information about a disaster is sensitive, ERLink includes a number of security measures. Access is restricted to registered users who must log-in with a user name and password. In the future, users will need a digital certificate to verify access to ERLink. Traffic between the ERLink server and users is encrypted using the Secure Socket Layer protocol. Within ERLink, there are different levels of read/write privileges. Finally, ERLink is monitored continually for system misuse or compromise. These precautions allow the system to support "sensitive but unclassified" information.

Currently, ERLink is being tested by the Departments of Commerce, Interior and Transportation, the Nuclear Regulatory Commission, FEMA, General Services Administration, the National Aeronautics and Space Administration (NASA), National Communications System, Corps of Engineers, and the state of California.

The pilot will help determine if ERLink can support the community's information sharing requirements of timeliness, content, and value. The test also will measure the efficiency of administering the server, such as setting up user accounts and providing accessibility to information, and the reliability of security features. Finally, using ERLink in exercises and actual emergency responses will point to future system improvements. The program manager is John O'Connor, oonorj@ncs.gov, 703-607-6130.

Rainer Dombrowsky, WCM Program Manager

OM Continues to Expand Home Page to Offer More On-Line Publications

The OM Home Page has been on-line since April 1996. Statistics indicate that there are about 6,000 "hits" per week. The most popular sections are NWS Publications, the End-to-End Forecast Process, Hot Topics, and Significant Weather.

During the past year, OM's Home Page has grown in scope and depth to meet user needs. OM is making NWS publications (especially the Hazard Awareness materials) available from the Home Page. Currently, users can download the Hurricane, Tornado, and NWR brochures in full color with graphics; available in text-only format are the Thunderstorm and Lightning, Winter Weather and Flood/Flash Flood brochures as well as the "Spotter Guide for Identifying and Reporting Severe Local Storms."

We have linked to the NWS/Red Cross "Are You Ready" series (on the Red Cross Home Page) and to the Owlie Skywarn booklet produced by Central Region. OM also recently added a link to the "Low Water Crossing" quick time movie produced by the Office of Hydrology. In addition, 1995 Natural Hazards Statistics (<http://www.nws.noaa.gov/om/hazstat.htm>) and Disaster Survey Reports (<http://www.nws.noaa.gov/om/omdis.htm>) are now on the OM Home Page. We will add new survey reports to the Home Page as they are published.

OM's goal is to make all our publications available through our Home Page. Our efforts have been greatly enhanced by the contributions from line and field offices. If you have seen any of our publications on other web sites, contact Joan VonAhn, OM, 301-713-0090 ext.120, or send an e-mail to joan.vonahn@noaa.gov.

Joan VonAhn, Customer Education Meteorologist

Integrated Hydrometeorological Services

SPC Adds Index Feature To Hazardous Weather Update Product

To help customers quickly determine if there is a product of interest, Hazardous Weather Updates (HWU) now include an index file (MKCHWU01) listing HWUs in use along with their headlines. The HWU, a fairly new SPC product, provides a quick overview of the impacts of large storms that typically impact regions larger than the areas of responsibility of one or two field offices. The weather systems that impacted the northwestern United States in late December and January are good examples of systems prompting HWUs.

To evaluate this new product, the SPC appended a message to the end of all HWUs issued on the first and fifteenth of each month, asking for comments and suggestions for improvements.

In addition, in December, SPC sent a survey to selected customers outside the NWS and to designated field offices. Many media and emergency managers responded that the HWU is useful.

Several field offices said that they did not use the HWUs or did not get it. SPC sent a second survey in early February. The results will be used to help decide whether to continue providing the product past the test period, which ends in May.

The HWU, prepared by the SPC, is sent to NWS field offices and other customers via Automation of Field Operations and Services (AFOS), the NOAA Weather Wire Services, and the Family of Services. The HWU is also available on SPC's Internet Home Page:

<http://www.nssl.uoknor.edu/spc>

Kevin McCarthy, Public Program Manager

Offshore Marine Forecast (OFF) to Move From NWS Field Offices to NCEP

As part of the modernization, NWS field offices will transfer OFF responsibilities to the National Centers. On April 29, OFF responsibilities from NWSFOs Taunton, MA; Sterling, VA; Seattle, WA; and Monterey, CA, are scheduled to shift to the Marine Prediction Center in Camp Springs, MD. In the fall, OFF responsibilities from NWSFOs Miami, FL, and New Orleans, LA, will move to the Tropical Prediction Center (TPC) in Miami, FL.

Initially, the only change to the program will be the originating office. NWS expects to streamline the marine product suite in the next several years but has not yet identified specific changes. OM has requested new AFOS identifiers for the products; these identifiers will be in place before the transfers take place. The old and new identifiers are listed in the table below.

OLD		NEW	
		Phase 1 (April 29, 1997)	
AFOS	WMO	AFOS	WMO
BOSOFFBOS	FZUS8 KBOS	NFDOFFNT1	FZUS21 KWBC
WBCOFFWBC	FZUS8 KWBC	NFDOFFNT2	FZUS22 KWBC
SEAOFFSEA	FZUS8 KSEA	NFDOFFPZ5	FZUS25 KWBC
SFOOFFSFO	FZUS8 KSFO	NFDOFFPZ6	FZUS26 KWBC
		Phase 2 (Fall 1997)	
MIAOFFMIA	FZUS8 KMIA	NFDOFFNT3	FZUS23 KWBC
NEWOFFNEW	FZUS8 KNEW	NFDOFFNT4	FZUS24 KWBC

Kevin McCarthy, Public Program Manager

World Area Forecast System (WAFS) to Provide Global Aeronautical Data

WAFS, a product of the International Civil Aviation Organization (ICAO), combines meteorology and communications with computers to provide meteorological flight planning data. WAFS global operations are planned with help from the World Meteorological Organization.

WAFS meteorological component has operated since 1984. The United Kingdom (UK) and the United States are developing the system's final phase, which will provide global forecasts of significant weather. This information will be distributed via commercial satellite broadcasts. The three broadcasts, one by the UK and two by the United States, allow near-global reception. The listing below is a status report on VSAT equipment implementation for the United States-supplied broadcasts.

Science and Training

For the Pacific Ocean area broadcast, equipment can only receive data at this time; the Atlantic Ocean broadcasts will soon have three equipment capabilities. The new system workstations will allow the Caribbean and Central America areas to remove aging meteorological text and graphic telecommunications equipment.

With computer workstations to store and process the data with software, such as GEMPAK and PCGRIDDS, WAFS delivers the same high-quality global model data to every country in the world—an unprecedented global meteorological modernization.

VSAT Equipment Implementation Status for the Atlantic and Pacific Ocean Areas

States where the WAFS receive-only equipment is installed.

PACIFIC OCEAN SATELLITE (valid as of 12/96)

Australia	China	Cook Islands	French Polynesia
Fiji	Indonesia	Japan	Korea*
Mongolia	New Zealand*	New Guinea	Philippines
Russia	Singapore*	Thailand	U.S. Guam
Hawaii*	Vantuat	Viet Nam	

ATLANTIC OCEAN SATELLITE (valid as of 1/97)

Argentina	Bolivia	Brazil*	Canada*
Chile*	Ecuador*	Paraguay	Peru*
Surinam*	Switzerland	UK MET Office*	Uruguay
Venezuela*			

States where the Regional Meteorological Telecommunications Network receive and send equipment is installed.

Antigua*	Aruba* (via Curacao)	Bahamas*
Barbados*	Belize*	Bermuda
Columbia	Costa Rica*	Cuba
Dominican Rep.*	El Salvador*	French Guyana*
Grenada*	Guadeloupe*	Guatemala*
Haiti	Honduras*	Jamaica*
Mexico*	Nicaragua*	Panama*
St. Maarten*	Trinidad*	U.S. Washington*
Puerto Rico*		Miami*

States where Satellite Transmission Unit send only via meteorological satellite equipment is installed.

Anguilla*	Dominica*	Montserrat	St. Kitts*
St. Vincent*	Tortola*		

* indicates the system is operational

The above information also can be found at: <http://www.nws.noaa.gov/ia/iscs.htm>. For further information contact Jerald Uecker, 301-713-1726 ext. 143; e-mail: Jerald.Uecker@noaa.gov.

*Jerald Uecker, Program Leader,
International and Enroute Aviation Weather*

COMET Awards 1997 Collaborative Projects

As a part of the NWS's Collaborative Science, Technology, and Applied Research Program (CSTAR), the COMET Outreach Program has awarded its 1997 Cooperative Projects. COMET Cooperative Projects promote broad collaborative activities between a university department or program and one or more NWS offices. The programs last for 1 to 3 years, with annual average university awards of about \$25,000.

In 1997, COMET awarded three new projects and renewed five programs (collaborating NWS office(s) noted are in parentheses). Projects renewed are as follows:

- "Joint regional studies: sea breeze-induced convection, cloud-to-ground lightning, hail detection, fog forecasting, studies of the planetary boundary layer" at the Florida State University (Tallahassee)
- "A cooperative program for the improvement of mesoscale forecasting for the Pacific Northwest" at the University of Washington (Seattle)
- "Flash flood prediction in the tropical Pacific as an end-to-end forecast process" at the University of Hawaii (Honolulu)
- "Selective mesoscale analysis, research, and training (SMART) project" at the North Carolina State University and (Raleigh); and
- "Mesoscale convective storms and quantitative precipitation forecasting across the middle Mississippi and Ohio River Valleys" at the Saint Louis University (St. Louis, Paducah, Louisville).

New Projects

- "Mesoscale modeling for Arizona" at the University of Arizona (Phoenix, Flagstaff, and Tucson).

As part of NWS's Focus on Integrated Remote Sensing Technology and Training effort, the NWS OSF/OTB has funded the following two new Cooperative Projects through COMET:

- "An integrated investigation of multisource rainfall estimates on the Upper Mississippi River Valley" at the University of Wisconsin (La Crosse)

- “An evaluation of the warning utility of tornadic vortex signatures detected by WSR-88D radars” at the University of Oklahoma (Norman, Minneapolis, Tallahassee).

For more information on the COMET Outreach Program, please visit the COMET Home Page at <http://www.comet.edu> or contact Victoria Johnson at 303-497-8361.

Sam Contorno, Meteorologist

NWS to Re-Engineer Training and Scientific Education Program

Increasingly tight budgets and technological advances have spurred the re-engineering of the Training and Professional Development (T&PD) Program. In particular, NWS must replace highly effective—but expensive—centralized classes with high-quality and responsive on-site training at NWS field offices. The heads of the NWS Training Center, COMET and OSF/OTB, in conjunction with the Regional Scientific Services Divisions and OM, are defining the re-engineered T&PD Program.

There are an increasing number of technologies available for on-site training. The Training Centers team will identify the strengths and weaknesses of each and carefully match them to technology in the subject area. The team also will consider individual training modes, including required levels of interactivity, visual quality, flexibility of access, cost to develop (in terms of time and delivery), and ease of revision.

As a first step, a team of SOOs and severe weather experts, coordinated by OM, has worked together to develop a Watch Decentralization Training Plan. This Plan, to be available solely via the World Wide Web, will define training objectives to be met almost entirely with resources that are (or will be) available at the WFO. Teletraining (see description below) will be an important component of the training. Centralized classes will be held only for specialized workshops aimed at SOOs and other selected personnel.

Among the new training technologies being considered is Audiographics, a first step toward a fully developed Teletraining Program. Audiographics systems feature live voice and interactive graphics that can be annotated interactively in real-time. Audiographics has been used successfully in a pilot project to train Western Region HMTs in WSR-88D theory. Also, the WSR-88D Operations Course will be converted to teletraining via Audiographics.

NWS is making short- and long-term plans to establish a Teletraining infrastructure at all field offices. Plans for the final stage include live interactive videoconferencing at all offices, perhaps via AWIPS. NWS staff is researching communications, hardware requirements, and costs.

Eli Jacks, Training Program Leader

Lake Effect Snow Study Update: Year 3

The third and final season of the Lake Effect Snow (LES) Study ended March 31. Forecasters who took part in the study contend that forecast services for LES events have improved over the last 3 years. Their contention is supported by initial results from user surveys and verification statistics.

For example, Buffalo showed a substantial improvement in verification scores this season compared to the past three seasons. Most of the improvement is due to a decrease in the False Alarm Ratio (FAR). The resulting Critical Success Index (CSI) jumped to a .70 this year compared to .51 last season and .43 three seasons ago. The Probability of Detection (POD) has remained consistently high (above .90 over the last four seasons).

For the 1996-97 season, the Eastern and Central Region Scientific Services Divisions have made a concerted effort to obtain user feedback by mailing user surveys to NWS customers. The Eastern Region alone sent out close to 1,200 surveys, with more than 500 returned by the end of January. Preliminary analysis shows that NWS forecast services for LES have definitely improved over the last 5 years.

During the last three years, forecasters made dramatic progress in using multiple digital data sets in the forecast process for LES, including WSR-88D radar, GOES-8/9 satellites, snow spotter networks, ACARS, numerical model guidance, including mesoscale models.

The WSR-88D consistently was rated as the most critical tool for detecting and providing short range forecasts of lake effect snow. The primary weakness of the WSR-88D or any ground-based radar system is the limited range for detection of low topped phenomena, such as lake effect snow. Therefore there are gaps in the WSR-88D radar umbrella, notably over northwest Pennsylvania and Northern Indiana.

NWS plans to install a new WSR-88D radar this summer in North Webster IN (45-50 nm southeast of South Bend). This radar will provide good coverage of LES events over the South Bend area. With the new radar, digital geostationary satellite data, an expanded network of snow spotters, ACARS data, improved mesoscale numerical models and a better educated forecast staff (from experience gained in the LES Study), service provided to the South Bend area for LES is expected to be significantly better than before the NWS modernization.

WSR-88D radar coverage over northwest Pennsylvania, adequate for only the most intense LES events, continues to be an area of concern. The final LES Study Report, due out this summer, will recommend how to compensate for this gap.

Jim Gurka, Scientific Studies Program Manager

OM Home Page Will Soon Feature Convective Watch Decentralization Training Plan

The OM Home Page will soon offer an initial version of a Watch Decentralization Training Plan. The URL is <http://www.comet.ucar.edu/pds/watchplan/index.htm>. The accessibility of this URL will be announced late this spring.

This plan, coordinated by OM, was written by a Science Application Team consisting of Science and Operations Officers, representatives from the three NWS Training Facilities (NWSTC, OSF/OTB and COMET) and severe weather experts from the SPC. The plan provides a sequentially organized outline of activities for generating convective watches locally. The plan divides training into individual instructional components and then stratifies them into the individual elements of knowledge, skills and abilities needed for each component.

Due to budget cutbacks, the NWS Training Program is being re-engineered. One aspect of this re-engineering is a shift from classroom training to technologies that can be used on-site, such as the Internet and teletraining. Thus, many of the materials outlined in this Plan have yet to be developed; however, the heads of the NWS Training Centers, in conjunction with OM staff and the Regional Scientific Services Divisions, will be continually adding to the materials on this Home Page.

This plan is one of an increasing number of documents OM will disseminate entirely via the Internet. Such dissemination saves printing and distribution costs and makes updates simpler and faster. Thus, this plan is truly a living document. Please send comments or suggestions for improvements to Don Burgess at the WSR-88D Operational Support Facility/Operations Training Branch at dcentsap@comet.ucar.edu.

Eli Jacks, Training Program Leader

Technology And Forecast Systems

Correction: Satellite Imager Capability Not Significantly Impaired

The Summer/Fall 1996 edition of the *Aware Report* incorrectly reported that the Geostationary Operational Environmental Satellite-9 (GOES-9) motor winding failed in April 1996. The corrected version should read:

"In April 1996, one of two redundant motor windings failed, leaving the remaining winding as a single point of failure."

The redundant winding in the motor still functions. GOES-9 imager capabilities were not significantly impaired.

Ron Gird, Satellite Program Leader

GOES-East and -West Scheduled for Down Time; GOES K Launched April 24

The GOES-East and -West spacecraft continue to operate within nominal ranges. The GOES-West special mitigation operations ran from February 14-28. A second mitigation period began on Wednesday, April 9, and ended on Wednesday, April 23. During these two periods, there was no data from both the imager and sounder instruments from 0430Z to 0500Z and from 0630Z to 1223Z. This is a 1.5 hour improvement over the previous fall 1996 mitigation operations.

GOES-K lifted off successfully on April 25, 1:49 a.m. from Cape Canaveral Air Station, FL. Part of the launch activities included a one-day Educators Workshop conducted by the NWS and Florida State University, Department of Meteorology. Some 100 teachers and students, including challenged students, from the High School/High Tech Program attended the workshop and witnessed the early morning launch. All preliminary stages performed nominally, placing the spacecraft in a transfer orbit and subsequently in a geostationary orbit on May 3, 1997. Once in geostationary orbit, the spacecraft was renamed GOES-10. We received the first official visible picture from the GOES-10 Imager on May 13. Two solar array anomalies occurred during GOES-10 check-out. We are forming an investigation team. The first GOES-10 Infrared picture is scheduled for June 6, 1997.

The NOAA science testing phase is scheduled for July 2-11. The GOES-10 spacecraft will enter the on-orbit storage mode on July 22.

Ron Gird, Satellite Program Leader

New GOES Satellites Produce Major Forecasting Gains

In January 1996, NOAA started a 2-GOES operations with the next generation of geostationary satellites, GOES -8 and -9. To evaluate this new capability, NOAA launched a GOES Assessment Project, including NOAA and NASA offices nationwide. The project's objective is to significantly improve NWS forecasting abilities by the use of real-time GOES digital data from the Imager and the Sounder instruments.

Last November, NWS conducted a GOES Assessment Meeting. Attending were representatives from each of the regions, four national centers, the National Environmental Satellite and Data Information Service (NESDIS), and NASA. Participants presented GOES assessment results and the group then developed goals for the 1997 assessment.

Forecasters Give New Data Thumbs-Up

NWS field response has been overwhelmingly positive. To date, OM has received 517 examples praising the value of GOES digital data in local operations. OM received 41 specific examples in which real-time GOES-8/9 digital data directly contributed to improved warnings, watches, or advisories being issued to the user community.

The Los Angeles Forecast Office said, "As for comments on the new digital GOES-9 data in general, it is like being near sighted and putting on your first pair of glasses. On almost a daily basis, the additional detail is helping make better forecasts. We are seeing things we never saw before." The most helpful GOES-8 and 9 product is the low-level cloud (fog) data. Users frequently cite the 1-km resolution visible imagery as being the most critical part of the warning and forecast process. Improved water vapor image resolution allows forecasters to see mesoscale circulation features, not detectable from GOES-7 imagery.

Individual lake effect snow bands are now detectable using Imager Channels 2 and 4 and, when combined with radar data, greatly improve the detection and forecasting of these events in the Great Lakes region. The NWS Spaceflight Meteorology Group reported using the more frequent CONUS sectors available from GOES-8 to track a clear area and determined it would be over the Kennedy Space Flight Landing area in time for the shuttle landing. Avoiding the use of the alternate landing site, Edwards Air Force Base, saves the NASA Shuttle program \$1 million per landing. Finally, hourly GOES cloud cover, cloud amounts and cloud tops, were provided to NWS locations with ASOS. Local offices used this information in hourly State Weather Round-Up Products.

The National Centers are focusing their initial assessment on the Total Precipitable Water (TPW) product and the GOES "Multi-spectral" High Density Cloud Drift Wind data

sets over the Atlantic and Pacific Oceans. The TPW product produced small, positive impacts in the Equitable Threat and Bias scores over the CONUS. This prompted the Environmental Modeling Center to start using this data set operationally in early 1997. GOES-8/9 Wind Sets were used operationally by the Tropical Prediction Center with positive impacts in 1996 hurricane forecasting operations. Plans for 1997 are to improve the reliability of the product distribution to the TPC. Direct Assimilation of GOES Sounder radiances into numerical models began with the testing of operational codes and validating the quality of the Sounder data sets.

The Aviation Weather Center developed a new geostationary re-mapping program for improving national and international coverage. The program uses data from GOES-East/West, GMS, and METEOSAT Spacecraft to provide improved coverage during an outage period from one of the satellites. For example, if GOES-East data is not available, GOES-West and METEOSAT data can be used to produce images along the East Coast and Atlantic Ocean. For more information, visit www.nws.noaa.gov/om/goes8asmt.pdf.

Ron Gird, Satellite Program Leader

NOAA's GOES Sounders Send First Operational Products

NOAA began routine operational production of Satellite Cloud Products (SCPs) from the GOES-East (8) sounder instrument in November 1995. By early 1997, NESDIS had nearly quadrupled production of SCP reports to roughly 800 an hour from both GOES -East and -West. SCPs are produced around-the-clock from the sounders on NOAA's newest three-axis stabilized satellites in geosynchronous orbit.

In addition to the substantial boost in SCP reports, product/system refinements identified through the GOES Assessment process, and new NWS and NESDIS computer and communications upgrades have significantly increased the speed of data generation and its receipt by local forecasters. Now the SCP data is nominally in the hands of the forecaster within 20 minutes after the GOES sounders have scanned the Continental United States. These advancements have led to the SCP's expanded use to the operational meteorological community.

The NWS currently uses the SCP mid- and high-level cloud data to produce "total sky cover" to complement several hundred ASOS locations throughout the lower 48 states in the widely disseminated State Weather Roundup. The data is also archived in the National Climatic Data Center's Local Climatological Data. NWS plans include integrating the data into its computer forecast guidance and weather graphics used by meteorologists worldwide as well as the production of SCPs for areas such as Hawaii and Puerto Rico.

Andy Noel and Jim Heil, Meteorologists, Satellite Program

NEXRAD Evolves To Open System Compliant, Computer Platform

From its inception, NEXRAD has greatly improved NWS's warnings and forecasts. This trend has continued through the system's more than 5 years of use. NWS forecasters have become familiar with the radar system and have developed new techniques for examining the atmosphere with NEXRAD. In the past 5 years, the radar system has improved as NWS has added new algorithms and enhanced software.

To ensure that the WSR-88D is capable of taking advantage of the newest science and technology available, it must evolve. This evolution, the NEXRAD Product Improvement (NPI) project, will rehost the operational WSR-88D functionality from a proprietary computer platform to an Open Systems compliant, standards-based workstation platform. This platform will take advantage of multiple vendor Commercial-Off-the-Shelf components.

NWS will field the Open Radar Product Generation subsystem in 1999, followed by the Open Radar Data Acquisition subsystem in 2002. The NPI is expected to continue through the lifetime of the NEXRAD program and addresses both near and long-term concerns. Some of the major benefits expected from the Open Systems architecture are easier and quicker improvements to hardware and software, reduced costs and risks associated with software maintenance and enhancement, lower costs associated with hardware maintenance, and reduced need to stockpile proprietary components.

Rich Lane, Radar Meteorologist

NWS Sends Service Assessment Team To Arkansas After March Tornadoes

NWS sent a Service Assessment Team to Arkansas following the devastating tornado outbreak that occurred on March 1. The Team leader was Richard Lane, OM, Silver Spring, MD. Team members included Gary Woodall and Chris Smith, Southern Region Headquarters; Renee Fair, NWSFO Little Rock, AR; and David Neal, Ph.D., from the University of North Texas, Department of Emergency Administration and Planning. The team's mission was to perform a thorough assessment of the services provided by the NWS and to assess the entire end-to-end warning process.

NWS will issue a full report when it completes the service assessment—however, there already are some clear indications. The emergency management community and the media of central and southwest Arkansas are pleased with the service provided by the NWS on March 1. They indicated that

NWS quickly offered an abundance of information. The NWS modernized technology, specifically the WSR-88D, provided excellent data to forecasters, enabling them to issue numerous timely warnings. In the four counties in Little Rock's County Warning Area (CWA), where 25 deaths and 340 injuries occurred, warning lead times ranged from 18 to 32 minutes. The other death and three injuries occurred in Greene County, AR, in the Memphis, TN, CWA. That office issued a tornado warning for Greene County 22 minutes before the tornado.

Rich Lane, Radar Meteorologist

Automated Surface Observing System (ASOS) To Test Video Cameras in Observation Gaps

NWS will test the use of video cameras to complement ASOS at selected NWS offices nationwide. This 1-year pilot study begins in the May/June time frame. ASOS and related technologies do not provide all of the observational information needed by NWS and external real-time and retrospective users. Among the most problematic are cloud types, snow depth, mountain obscurement, and local visibility variations.

Supplementary networks, involving NWS staffed offices and volunteer observers, can help fill the void at many locations, but human resources are scarce and diminishing. FAA-sponsored augmentation will provide elements critical to aviation at towered airports.

Western Region has demonstrated that commercially available video cameras provide forecasters the ability to observe weather parameters that ASOS cannot presently report, such as snow depth. As a result, NWS has decided to broaden this test to include all the Regions. The five additional sites selected are Valdez, AK; Plentywood, MT; Theodore Roosevelt National Park, ND; Buffalo, NY; and San Juan, PR.

The test project also will determine whether the video cameras can provide valuable applications to ASOS augmentation. NWS has selected two sites for the test pilot study. The first, Jacksonville, FL, is a Service Level A site where the forecast office cannot see the runway. Video cameras at this location, given proper night illumination and visibility markers, could help with low-end visibilities down to 1/8, 1/16, and 0 miles. Wichita, KS, is a Service Level C site that is slated to become a Service Level A site. A video camera might save the Hydrometeorological Technician (HMT) from going outside to view weather conditions, reducing the HMT workload.

Andy Horvitz, Surface Observation Program Manager

Did Montague, NY, Set Snow Fall Record?

On May 1, the NWS issued a special report ruling that the reported 77-inch, 24-hour snowfall could not be accepted as a new climatological national record because of non-standard measurements. The snowfall record remains with Silver Lake, CO, which recorded 76 inches accumulating from April 14-15, 1921.

This Montague storm's enormous size was measured by a volunteer snow spotter, who took too frequent measurements to use for an official record. Official standards require that an observer take no more than one measurement per six hours. More frequent measurements tend to result in higher total snow fall because they account less for settling.

A special committee formed to investigate the record snowfall commended the volunteer spotter for his efforts under extremely difficult conditions. The committee found that the volunteer observer to be exceptionally diligent. NWS formed the special committee to collect facts on the Montague snowstorm which, because of its reported national record snowfall, received enormous media and scientific attention.

The committee consisted of the following six people: Team Leader, Robert Leffler, Physical Scientist, Office of Meteorology, Science Division, NWS; Raymond Downs, Program Analyst, Office of Systems Operations, Observations Branch, NWS; Grant Goodge, Data Quality Control Chief, Data Operations Division, National Climatic Data Center, NOAA; Nolan Doesken, Assistant Colorado State Climatologist, Colorado State University; Keith Eggleston, State Climatologist for New York State, Cornell University; and Dr. David Robinson, Chairman, Department of Geography, New Jersey State, Climatologist, Rutgers University.

The committee went to Montague on February 4-5 to collect facts and conduct interviews. Montague is located at 1,800 msl, about 25 miles east of Lake Ontario. Up to 77 inches of snowfall reportedly fell in 24 hours on January 11-12, 1997. The committee interviewed NWS weather spotters and cooperative observers, county snow plow operators, residents, and police involved in rescue operations. The team also collected data and pictures for analysis.

Robert Leffler, Physical Scientist

NWS Tests Backup of UK Meteorological Office (UKMO) Model Graphics

On Wednesday, February 5, NWS sent a test transmission of AFOS graphics generated from UKMO GRIB data. These graphics can serve as a backup to NCEP's AFOS graphics. Some 38 AFOS UKMO backup graphics were sent on AFOS between 1630 and 1915 UTC.

The test validated the production jobs that create and transmit the UKMO graphics. NWS also verified receipt of the UKMO graphics at test sites. Although NWS requested no action at most field sites, all NWS AFOS sites were made aware of this method in providing backup AFOS graphics.

Barbara Tobe, Office of Systems Operations (OSO), prepared extensively. A coordination letter, with details of this test, went out a month ahead of time to the regions, NCEP, and OSO. The day before the test, a detailed message about the test was sent to all NWS field office managers via AFOS. A message was sent to all NWS field office managers via AFOS an hour before the test started.

NWSTG produced a subset of AFOS and FAX graphics from UKMET GRIB data that was then transmitted over AFOS, and also over DIFAX to FAX. We did not receive any complaints and verified that the charts were received both over AFOS and FAX circuits. Barbara Tobe stated, "The test effectively evaluated NWSTG's capability to produce a subset of AFOS and FAX graphics from UKMET GRIB data."

Gary Charson, Meteorologist

Atmospheric Education Update

During the last academic semester, 70 NWS employees served as DataStreme mentors, helping to make K-12 teachers more comfortable explaining meteorology to their students. Just completing its first year, the DataStreme Project is a major teacher enhancement initiative of the American Meteorological Society (AMS).

The program's main goal is to train Weather Education Resource Teachers so they can promote the teaching of weather across the K-12 curriculum in their school districts. With recent budget restrictions, the funding of the annual Atmospheric Educational Resource Agents (AERA) workshop is in question. The AMS hopes the DataStreme course will be an option for training future AERAs. Of course, the AMS could not have proceeded with the DataStreme Project without an established AERA network. The AERAs administer the course and lead the Local Implementation Teams of mentors. The operational mentors provide resources to ensure questions about the concepts, such as the Jet Streak, are answered by an authority.

The initial step in training resource teachers is their participation in the DataStreme distance-learning course. The 13-week course is offered twice a year to selected participants. It focuses on the study of the atmospheric environment through the use of electronically transmitted weather data and learning materials combined with Study Guide readings and investigations. The Project is funded by the National Science Foundation with assistance from NWS and the State University of New York College at Brockport. DataStreme expects to train over 4,000 teachers nationally.

Henry Robinson, Meteorologist

NOAA Weather Radio Initiatives

Comic Strip Gives Boost to NOAA Weather Radio

Nationally-syndicated comic strip character Mark Trail will serve as the campaign symbol for educating the public about the National Weather Service's NOAA Weather Radio, announced NOAA and King Features Syndicate on April 18.

"I hope that Mark Trail will encourage people across the country to get early warnings of severe weather by having a NOAA Weather Radio," said Mark Trail illustrator/writer Jack Elrod.

The announcement was made during at the NWS Dissemination Conference in Washington, D.C. A poster of Mark Trail holding an NWR was unveiled during the announcement.

In the past two years, several Mark Trail color Sunday strips have focused attention on weather-safety issues, including flash floods, tornadoes and hurricanes, and the value of having NWR receivers to get severe weather warnings quickly.

NOAA Assistant Administrator for Weather Services Dr. Joe Friday, Jr., commented, "Mark Trail has rendered an invaluable public service by drawing attention to the dangers associated with flash flooding, tornadoes, and hurricanes." He also credits Elrod and King Features for giving NWR national attention through Mark Trail. "One of the best kept public safety secrets in the United States," said Friday.

The Mark Trail strip is syndicated in more than 175 newspapers, with an estimated readership of about 35 million people.

"King Features is pleased to team up with NOAA and the National Weather Service to help educate people about how they can stay safe and get immediate warnings of hazardous conditions by having a NOAA Weather Radio," said King Features spokesperson Claudia Smith.

Elrod, who has been associated with the outdoors strip since 1950, said he's always had an interest in weather. He shares a pretty common experience with many NOAA scientists who have been forecasters in the military—Elrod was a Navy weather forecaster in the Pacific during World War II.

The Mark Trail image will help NWS meteorologists and local NWR citizens committees to build public awareness of the program, organize support for establishing new transmitters, and place NWRs equipped with automatic tone alarms in all schools and other public gathering places.

During an emergency, NWS forecasters interrupt routine weather radio programming and send out a special tone that activates weather radios in the listening area. The tone alarm feature can sound an alert from a "standby" or mute setting

and gives people immediate information about a life-threatening situation. Hearing or sight-impaired people can get these warnings by connecting weather radios with alarm tones to other kinds of attention-getting devices, such as strobe lights, pagers, bed-shakers, and printed text equipment.

The NWR program has made significant strides since 1994 when Vice President Al Gore promised to extend the reach of NWR nationwide. The Vice President also set a goal to make NWR receivers as common as smoke detectors in American homes and to extend the coverage provided by the NWR network to 95 percent of the U.S. population.

Since the Gore NWR initiative began, NWS and other members of the Gore task force have been actively promoting public and private sector partnerships to provide the needed resources. Grassroots organizations have helped install more than 50 new weather radio transmitters since 1994, combining resources of private enterprises, associations, and local, state, and Federal Government agencies. With the addition of new transmitters, Alabama in late 1996 became the first state to achieve near 100 percent NWR broadcast coverage.

Barry Reichenbaugh, NWS Public Affairs

NWR/Mark Trail Awards Announced

The Mark Trail/NWR awards are named for the nationally-syndicated cartoon character, which serves as the campaign symbol for the NWR program. Since 1995, Jack Elrod, writer and illustrator of Mark Trail, and King Features Syndicate have been strong advocates for publicizing severe weather safety and the value of NWR.

The following awards were made April 16 during a Congressional Reception at the U.S. Capitol, part of the 4-day NWS Dissemination Technology Conference.

- Florida Power & Light, for their grant that helped build the NWR transmitter in Fort Pierce, FL, and the printing and distribution of 450,000 leaflets outlining the NWR Program and the benefit of having a receiver in your home.
- Yadkin, Inc., a totally owned subsidiary of Alcoa, for contributing an NWR transmitter in Badin, NC.
- The Association of Missouri Electric Cooperatives, for contributing two NWR transmitters, in Crawford and Shannon Counties, respectively.
- The Alabama Rural Electric Association of Cooperatives for their work to help Alabama become the first state to provide 100 percent NWR coverage.

- New England States Emergency Consortium, which provided more than 300 school districts in eastern Massachusetts and southern New Hampshire with NWRs.
- Christine E. Ohlsen, Washington State Grange, for spearheading a drive that has placed a NWR receiver in all the school districts in Washington State. Ms. Ohlsen is currently working to place NWR receivers in all hospitals and nursing homes throughout the state.

Barry Reichenbaugh, NWS Public Affairs

NWS Defines Dissemination Needs For the Next Millennium

On April 15-18, NWS hosted a Dissemination Technology Conference (DTC) in DOC's Washington, D.C. auditorium. The conference's goals were to draw a clear vision of NWS dissemination needs in concert with the needs of the user community and to gain insight into what technology might realistically be available to satisfy these special needs.

The conference focused on providing accurate, useful information about NWS. The meeting also sought to elicit innovative ideas to define and implement a comprehensive dissemination capability in the NOAA Weather Information Service (NWIS). NWIS will replace the NOAA Weather Wire Service (NWWS) and provide a telecommunication infrastructure capable of fulfilling the NWS dissemination mission for the year 2000 and beyond.

The DTC helped better define a comprehensive strategy for resolving the myriad problems that confront NWS information dissemination. The effort to develop a dissemination policy provided the catalyst; the approaching end of the NWWS contract provides the opportunity to rectify weakness. The modernization did not specifically address dissemination needs. While developing a plan to acquire an NWWS replacement, at a time when telecommunication and information technologies are undergoing dramatic changes, it became clear that an unprecedented opportunity exists: NWS and user needs might be cost effectively satisfied by private sector technologies.

More than 500 people registered for the conference via mail and Internet; 367 attended. The conference featured exhibits from 23 companies; 29 presentations by NOAA/NWS; 24 presentations by the private sector; and 5 presentations by government agencies outside NOAA. During the conference, NWS announced the agreement with King Syndicates, that formalizes the relationship between Mark Trail, Jack Elrod and the NWR.

Comments from conference attendees indicated that we met objectives: Many in the private sector gained greater insight into NWS needs, plans, and programs; users were able

to express their needs to the NWS and service providers; and the NWS gained insight into new and emerging technologies that might be applied to meeting NWS dissemination needs.

*Ken Putkovitch, Section Chief,
Dissemination Systems*

Puget Sound Weather Radio Dedicated

On March 4, NWS dedicated Puget Sound Weather Radio in a ceremony at the NOAA Western Region Center in Seattle, WA. The new NWR station was developed through a public/private partnership with Acordia/Pettit-Morrey Marine Insurance Brokers, Orca Electronics and Communications, King County Emergency Management, the U.S. Coast Guard, the U.S. Army Corps of Engineers, and NWS. Acordia/Pettit-Morrey purchased the transmitter and related radio equipment; Orca helped establish the transmitter site, design the radio signal path and install the equipment; and the Coast Guard, Corps, and King County provided transmitter and UHF radio link-site locations. In addition, the North Pacific Marine Radio Council helped coordinate the frequency with Canada.

Puget Sound Weather Radio is marine oriented. It relieves the Seattle NWR station of marine programming and provides better coverage of the northern interior of western Washington. The new station also allows 7 northwest Washington counties to receive EAS messages. This station is the fourth new NWR transmitter in Washington since Vice President Gore's 1994 NWR expansion initiative. Washington now has 14 NWR transmitters.

The dedication ceremony included presentations by NWS Deputy Assistant Administrator Dr. Susan Zevin, Washington NWS Area Manager Chris Hill, Washington State Association of Broadcasters President Mark Allen, FEMA Region X Deputy Director Ray Williams, Acordia/Pettit-Morrey Senior Account Executive Bill Davis, and NWS Seattle WCM Ted Buehner. DOC Special Service Awards were also presented to the key representatives from Orca Electronics and Acordia/Pettit-Morrey. The ceremony concluded with a live test of EAS via the new NWR station, helping to kick off a statewide EAS public education effort. This live test included:

- Viewing a televised message being encoded and transmitted on the SAME unit from the Seattle forecast office
- Hearing the digital EAS message over the new weather radio station on a VHF receiver
- Seeing the message decoded on both a SAGE Endec and a reader board all within a few seconds.

The visual and audio aspects of this live test clearly demonstrated how EAS works via NWR and made an effective presentation for TV, radio, and newsprint media in attendance.

Ted Buehner, WCM, NWSFO Seattle, WA

Hazards Community Forum

NOAA Sustains Healthy Coasts FY 99 Initiative

U.S. coastlines are at-risk from a variety of natural hazards. Risks to life and property from these recurring coastal hazards will increase over the next decades with the growth of coastal populations—expected to rise from 36 million to 73 million by the year 2010.

NOAA is responding with the FY 99 Healthy Coast Initiative. This program will be a cooperative effort between Federal, state, and private partners in hazard risk assessment, research, education, and communications. The Initiative will draw on the framework of FEMA's National Hazard Mitigation Strategy and will use NOAA's strong national capabilities in coastal observations, warnings and forecasts, and stewardship of natural and cultural resources.

The initiative is consistent with other NOAA Strategic Planning Teams and with the Administration's National Science and Technology Council's Strategic Plan for Natural Disaster Reduction. NOAA will draw on its strong connections with the university community, state and local governments, and coastal constituencies. It also will use its unique capabilities in applied research, education and technology transfer to mitigate and minimize loss of life and property and the costs of cleanup due to coastal hazards. The goals for this effort are to:

- Significantly reduce the risk of loss of human life, property, and natural resources from coastal hazards
- Improve the understanding of coastal hazards and transfer technology for coastal hazard mitigation
- Strengthen Federal, state, and local mitigation capabilities
- Effectively respond to coastal disasters.

*Curt Mason, Chief Scientist,
Coastal Services Center, Charleston, SC*

High Rise Offices Benefit From Government-Private Sector Video

NWSFO Milwaukee-Sullivan, the Milwaukee County Emergency Management, and three area businesses have joined to produce a training video on tornado spotting and safety for tenants in high-rise buildings. Initially, Donald Miese, of Bank One, Inc., contacted Hattie Dandridge, Milwaukee County Emergency Management, to ask if they knew of a training videotape on tornado spotting and safety for high-rise build-

ings. Bank One, Inc., employees work in a 42-story building in Milwaukee. Dandridge then contacted Rusty Kapela, Milwaukee WCM, to ask if the NWS had any training tapes addressing high-rise building issues.

Since no one knew of a training video on this subject, Miese, Dandridge, and Kapela decided to produce the tape. Miese secured funding from Pinkerton Securities, Inc., who donated \$4,000 toward the project. (Pinkerton Securities, Inc., has the security contract for Bank One Plaza.) Miese also contacted Editran, a video duplication and production company to produce the video tape. The final tape is about 25 minutes long and includes the following:

- Parts of a 1-hour tornado spotter and safety seminar given by Rusty Kapela to 63 security/safety officers of Bank One Plaza
- Emergency Management activation of Milwaukee county sirens
- A segment from the July 18, 1996, violent tornado that struck Oakfield, WI
- Other video segments of dramatic tornadoes.

Pinkerton Security, Inc., copyright owner, plans to distribute this training tape to its many high-rise customers across the country. Editran, Inc., will handle the mass production.

Rusty Kapela, WCM, Milwaukee/Sullivan, WI

NWS Works with Coalition to Educate Public on Severe Weather in Michigan

To help educate the public about severe weather hazards, NWS takes an active role in the Michigan Committee on Severe Weather Awareness. This committee was formed in 1991 to coordinate public information efforts regarding flood, tornado, winter, and other severe weather safety. Other committee members include the American Red Cross, the Michigan Association of Insurance Companies, Michigan Association of Insurance Agents, Emergency Management Association, Michigan Association of Broadcasters, Michigan State Police, TV meteorologists, and the Michigan Department of Environmental Quality.

Each year, this non-profit organization develops and distributes severe awareness weather packets to all media, emergency managers, and other state agencies during severe weather and winter weather awareness week campaigns. This committee secures proclamations from the Governor that announces the various severe weather weeks in Michigan.

In the winter, the group sponsors a severe weather preparedness poster contest for 4th and 5th graders across the state. Winners get savings bonds and are invited to the State Capital for an awards ceremony. During the past 2 years, more than 1,000 students submitted posters.

The Committee also leads efforts to encourage schools to take part in tornado drills during severe weather awareness week. Certificates of participation are sent out to schools that take part. During the severe weather awareness week in the spring, committee members meet at a local school to promote tornado school safety and preparedness.

The Committee also takes part in area mall displays to promote severe weather safety. They are involved in developing, creating, and distributing severe weather safety videos to television stations for public service announcements.

Gary Campbell, WCM, NWSFO Detroit/White Lake, MI

Weather Spotter—NWS Connection

Thanks to an active spotter network, the Boise NWS office more accurately forecasted a rare winter thunderstorm on December 10, 1996. The storm was detected on the Boise WSR-88D just north of the metropolitan area. The office also received several spotter calls siting marble size hail. Meteorologists noted further intensification and issued two severe thunderstorm warnings. After issuing the warnings, a weather spotter called on a cellular phone to report dime sized hail north of Boise on Highway 55. A little while later, as the storm moved into the Boise mountains, a spotter reported 1-inch diameter hail.

The combined effort from weather spotters and the NWS resulted in an average 18 minutes lead time of the Severe Thunderstorm Warnings. What makes this team effort unique is the severe thunderstorm occurred in December. The occurrence of severe thunderstorms in December over southwest Idaho is very rare, approximately once every 10 years.

The joint effort of weather spotters and NWS helped prevent false alarms and provided the public with detailed information related to this rare and significant weather event.

Carl Weinbrecht, WCM, NWSFO Boise, ID

Nevada's WCM Gains Expertise By Working Closely with Red Cross

In June 1995, after being on station about 4 months at NWSO Elko, NV, I visited the local Red Cross office. I introduced myself and proceeded to tell them who I was and about my position at the NWS. Although the director was not there, within a matter of days, he called me and wanted to meet.

The local Red Cross, like our own office, was in a spin-up mode. They were closing smaller offices across northeast Nevada and establishing a bigger office in Elko to handle the same five counties as in our County Warning Area. I was nominated to the Board of Directors in August and made Chairman of the Disaster Committee.

The Red Cross has numerous classes available related to emergency/disaster assistance that I have found helpful. These courses include:

- Introduction to the Red Cross
- Disaster Services
- Mass Care I
- The Inclusive Leader: Maximizing our Diverse Work Force
- Damage Assessment I
- Disaster Response Team Training
- Shelter Operations/Simulations
- Community First Aid and Safety
- Community CPR
- Emergency Assistance to Families
- Instructor Candidate Training

I have taken most of the above classes and expect to complete the rest by spring 1997. Being in the Red Cross has brought me a tie to the local community that would not have been possible otherwise.

As a member of the disaster committee, I am usually notified of any event where there is the possible loss of shelter. Usually this has been a house or apartment fire but could just as easily be a flood or small tornado. I also have found out about the tremendous amount of service that is available through the Red Cross in disaster response.

I have found that many county emergency managers really don't have a complete understanding of what the Red Cross does or what services it can provide. Like the Weather Service, the Red Cross should have a tie-in with each county emergency plan. We are still in the process of obtaining each county plan and reviewing it for both services.

This year, I was made Vice Chair of the Board of the Red Cross and have continued on as Vice Chair of the Disaster Committee. While the Red Cross may not be for everyone—it does take time—the rewards from a professional and personal perspective are significant. As a WCM, the classes that they offer have helped me not only from a personal standpoint but also have helped me understand what is going on in a disaster. Since many disasters are related to weather, this has been a plus professionally. In an area where emergency management continues to evolve, being on the Red Cross has only been a positive experience.

Also through the Red Cross, we were able to institute initial Voluntary Organizations Active in Disaster (VOAD) meetings. This is another organization WCMs might consider getting more involved with. This group of various volunteer organizations also helps in disasters. Both groups provide avenues to gain exposure in the community.

Ed Clark, WCM, NWSO Elko, NV

100 NOAA Weather Radios Distributed Throughout Yellowstone County, MT

The Yellowstone County Local Emergency Planning Committee awarded the Outreach Committee of NWSO Billings, MT, a \$4,500 grant to distribute tone-alerted NWRs to public and parochial schools, hospitals, retirement facilities, and other heavily populated public institutions. This project, began last summer 1996, culminated February. The Outreach Committee plans to distribute 100 tone-alerted NWRs by the end of March, before the severe weather season starts. The Outreach Committee, chaired by Chuck Bikle, includes the NWS office and local radio and TV stations, Emergency and General Services, and ZooMontana.

Bert Nelson, WCM, Billings, MT

Public/Private Partnerships Flourish in Alabama

The Birmingham NWSFO was able to print its Severe Weather Awareness Week booklet thanks to sponsorship from the Alabama Power Company, the Birmingham Chapter of the American Red Cross, the State Department of Education, and the Alabama Emergency Management Agency. The 24-page booklet was produced in color—an extra that definitely brought it more attention and recognition. It covered severe thunderstorms, lightning, flash floods, tornadoes, NOAA Weather Radio, and several other topics.

Brian Peters, WCM, Birmingham, AL

NWS Participates in an Innovative School Awareness Project

On January 29, Elizabeth Middle School in Elizabeth, CO, had a "tornado" hit the school. The entire 8th grade class was involved in the exercise. Each student played a role in the exercise (storm spotter, meteorologist, teacher, school administrator, emergency manager, EMT, fire department, Salvation Army, County Road and Bridge, spectator, casualty, etc.). The rest of the school took part in a normal tornado drill orchestrated by the 8th Grade.

To prepare for this event, speakers from the Salvation Army, fire department, and the emergency manager came to talk to the 8th graders. In December, I spoke to the 200 students in the 8th grade class on the role of the Weather Service in the warning system. I briefed them on how we use radar and spotters to gather information and how we issue warnings. The teachers developed tornado warnings from copies of 1996 warnings for Elbert County.

In early January, I returned to the school to give a spotter training session to a smaller group (35-40) of very interested students. The talk was well received by the students and generated a lively question and answer session.

I was impressed by this project. The students have learned a lot about how various professions work together during an emergency situation and about tornado safety. The teachers plan to prepare a package of information on the project and make it available to other Colorado schools interested in having their own tornado exercise.

Robert Glancy, WCM, Denver, CO

Publications and Audiovisuals

New NWR Weather Radio Brochure Features Comic Strip Hero Mark Trail

We are proud to announce the new *NOAA Weather Radio* brochure (NOAA PA 96070). OM worked closely with NOAA and NWS Public Affairs, Industrial Meteorology, OSO, and NWS regional staff to complete this project. ARC and FEMA granted us approval to add their logos to this publication. The brochure features the comic strip character, Mark Trail, who has become the spokesman for NWR. OSO is printing 90,000 copies. NWS field office can order up to 300 copies from the National Logistics Supply Center (NLSC) in Kansas City, MO. This brochure is also available on the NWR Home Page: <http://www.nws.noaa.gov/nwr/index.html>

Linda Kremkau, Editor, Customer Service

Frequency Brochure in Stock

The revised March 1997 NWR frequency pamphlet is now available through NLSC in Kansas City (NOAA/PA 94061 Rev. March 1997). The new brochure is yellow. You can order a maximum of 500 copies. This brochure is also available on the NWR Home Page: <http://www.nws.noaa.gov/nwr/index.html>

Linda Kremkau, Editor, Customer Service

“Flash Floods and Floods . . . The Awesome Power” Slide Resource Library and Presenter’s Guide

Now available is the newly updated “Flash Floods and Floods . . . The Awesome Power” Slide Set and Presenter’s Guide. This program was completed last November and distributed in December 1996 to NWS Regions and field offices. This project was first started several years ago and with the help of the Office of Hydrology and WCM Bruce Burkman, Shreveport, LA. Updates include material from more recent floods, such as the 1993 Great Flood and Hurricane Fran.

This new slide set serves as a training tool for WCMs. It is meant to be used for presentations to emergency managers, civil defense organizations, media, spotters, educators, etc. This product heightens public awareness and understanding of hazards associated with floods. This is another product of our continuing coalition to work with other Federal agencies and the private sector to provide a consistent message that saves lives and reduces property loss.

To purchase this slide set and presenter’s guide, contact the National Audiovisual Center, 703-487-4650. Ask for “Stock No. AVA19997.SS00; cost: \$95 plus \$4 handling fee.

Linda Kremkau, Editor, Customer Service

National Audiovisual Center (NAC) And NWS Publications

Included on Page 21 is information on how to obtain NWS materials through the NAC with the stock number and cost. You will also find details about how to obtain materials from OM Customer Service.

Look for the new slide set entitled “Flash Floods and Floods . . . The Awesome Power.” This Slide Resource Library and Presenter’s Guide costs \$95. It includes 151 slides and the presenter’s guide. To order, ask for “AVA19997.SS00.”

On Page 22, following the NAC information sheet, you will find the latest NWS Publications List. It includes five new publications:

NOAA PA 96061	MSC-8, Mexican Border to Point Conception, PA
NOAA PA 96064	MSC-11/12, Great Lakes
NOAA PA 96070	NOAA Weather Radio
NOAA PA 96074	The Hidden Danger— Low Water Crossing
NOAA PA 96076	ASOS Guide for Pilots (Booklet)

Notice that the NLSC no longer carries several Red Cross publications due to depleted stock. You may be able to obtain these materials through local Red Cross chapters. Also unavailable are printed copies of the “Spotter’s Guide for Identifying and Reporting Severe Local Storms” (NOAA PA 81011). You can download a text-only copy of this guide on OM’s Home Page under Publications: www.nws.noaa.gov/om/nwspub.htm.

Linda Kremkau, Editor, Customer Service

National Weather Service Slide Sets and Videotapes

The NWS slide sets and videotapes can be purchased from the National Audiovisual Center (NAC) at the address below.

National Technical Information Service
National Audiovisual Center (NAC)
5285 Port Royal Road, Rm. 1008
Springfield, VA 22161

Customer Inquiry: 703-487-4660
Telephone Sales: 703-487-4650
Fax: 703-321-8547

Handling fee: \$4 per order.

The NWS slide sets and presenter's guides available from NAC are:

<u>NAME</u>	<u>STOCK NO.</u>	<u>COST</u>
Winter Storms...The Deceptive Killers	AVA19250.SS00	\$83
Tornadoes...Nature's Most Violent Storms	AVA19540.SS00	\$77
Thunderstorms and Lightning . . . TheUnderrated Killers	AVA19778.SS00	\$83
Hurricane Hugo	AVA18529.SS00	\$105
Hurricane Andrew	AVA19393.SS00	\$77
Advanced Met. Spotter Training Slides	AVA17568.SS00	\$127
Concepts of Severe Storm Spotting	AVA19930.SS00	\$85
Flash Floods and Floods . . . The Awesome Power	AVA19997.SS00	\$95

The NWS videotapes available from NAC are:

"Terrible Tuesday," 1/2" VHS, 23 minutes, color, 1984	AVA11945.VNB1	\$50
"Hurricane," 1/2" VHS, 28 minutes, color, 1985	AVA12440.VNB1	\$50
"The Awesome Power," 1/2" VHS, 17 minutes, color, 1988	AVA17096.VNB1	\$50

Most of these videotapes and slide sets can be borrowed for presentations or school talks from Weather Service Headquarters (address below). For availability of these audiovisual materials, please contact Linda Kremkau, Customer Service, WSH, at **301-713-0090 x118**.

National Weather Service, NOAA
1325 East-West Highway, Rm. 14370
Silver Spring, Maryland 20910

Other videotapes that can be borrowed from Customer Service are:

"The Hidden Danger—Low Water Crossings," 1/2" VHS/8 minutes/NWS Office of Hydrology, 1996
"StormWatch," 1/2" VHS 30 minutes, copyright by TESSA, 1995
"Surviving the Cold," 1/2" VHS 16 minutes, American Red Cross Video Network, 1989
"Minneapolis Tornado," 1/2" VHS, 12 minutes, copyright by KARE-TV, 1986

Those interested in using portions of the NWS videotapes should contact our NOAA Video Studio at **301-713-1479**. Ask for Pam O'Neil.

NWS Publications

NOAA PA

NAME

70027 Survival in a Hurricane (Wallet Card)
 77014 Flash Flood (Wallet Card)
 81011# Spotter's Guide for Identifying and
 Reporting Severe Local Storms
 82002 Dust Storm Driving Safety (Wallet Card)
 82004 Watch Out Storms Ahead
 85001 Heat Wave
 85002 Hawaiian Hurricane Safety Measures with
 Central Pacific Tracking Chart
 85005 Tornado Safety Tips (Como Protegerse
 En Caso De Tornado) (WC)
 85006 Survival in a Hurricane (Como Sobrevivir
 En Un Huracan) (Spanish 70027) (Wallet Card)
 86001 Natural Hazard Watch & Warning Poster
 (English/Spanish)
 91001 Hurricane! A Familiarization Booklet
 91002 Winter Storms . . . The Deceptive Killers
 91003 Red Cross—Are You Ready for a Winter Storm?
 91004 Red Cross—Are You Ready for a Winter Storm?
 (Spanish Version)
 91005 Red Cross Poster - Are You Ready for a Winter
 Storm? (English/Spanish)
 92050 Flash Floods and Floods. . . The Awesome Power!
 92051 SKYWARN Decal
 92052 Tornadoes . . . Nature's Most Violent Storms
 92053 Thunderstorms and Lightning...
 The Underrated Killers!
 92054 FEMA's Emergency Preparedness
 Materials Catalog
 92055 Advanced Spotter's Field Guide
 92056 Mariner's Guide to Marine Weather Services
 92057* Red Cross—Are You Ready for a Tornado?
 92058 Red Cross—Are You Ready for a Tornado?
 (Spanish)
 92059* Red Cross—Are You Ready for a Flood
 or Flash Flood?
 92060 Red Cross—Are You Ready for a Flood
 or a Flash Flood? (Spanish)
 92061* Red Cross Poster—Are You Ready for a
 Tornado? (English/Spanish)
 93051* Red Cross Poster—Are You Ready
 for a Thunderstorm?

NOAA PA

NAME

93052 Red Cross—Are You Ready for a Thunderstorm?
 (Spanish)
 93053* Red Cross Poster—Are You Ready for a
 Thunderstorm? (English/Spanish)
 93056 A Pilot's Guide to Aviation Weather
 Services (replaces PA 71005) (Booklet)
 93059 A Change in the National Weather Service
 93060 Spotter ID Card
 94050 Hurricanes . . . Unleashing Nature's Fury
 (Revised March 1996)
 94051 Aviation Modernization
 94052 Red Cross—Are You Ready for a Heat Wave?
 94053 Red Cross—Are You Ready for a Hurricane?
 94054 Red Cross—Are You Ready for a Hurricane?
 (Spanish)
 94055 Red Cross Poster—Are You Ready for a
 Hurricane? (English/Spanish)
 94056 Red Cross—Are You Ready for a Heat Wave?
 (Spanish)
 94057* Red Cross Poster—Are You Ready for a Heat
 Wave? (English/Spanish)
 94058 Safe Boating Weather Tips
 94059 River and Flood Program (Hydrologic
 Services Program)
 94061 NOAA Weather Radio Frequency pamphlet
 96051 National Centers for Environmental Prediction
 96052 Key to New International Aerodrome Forecast
 (TAF) and New Aviation Routine Weather
 Report (METAR) (Card)
 96053 NWR Decal
 96061 MSC-8, Mexican Border to Point
 Conception, PA
 96064 MSC-11/12, Great Lakes
 96070 NWR Brochure
 96071 Atlantic Hurricane Tracking Map - 8-1/2" x 11"
 96072 Atlantic Hurricane Tracking Map - 17" x 22"
 96073 Pacific Hurricane Tracking Map - 12" x 24"
 96074 The Hidden Danger—Low Water Crossing
 96076 ASOS Guide for Pilots (Booklet)
 0002 NOAA Brochure

Not available from NLSC. Available in text-only format
 on OM's Home Page:

<http://www.nws.noaa.gov/om/nwspub.htm>

* Available from your local Red Cross chapter only.

National Disaster Education Coalition

We're pleased that the National Disaster Education Coalition has been revived a bit more formally. National partners in public education activities are now meeting on a monthly basis to share ideas, review materials, and work together in areas where we share common goals.

Active coalition members include representatives from the NWS, FEMA, the American Red Cross, National Fire Protection Association, U.S. Fire Administration, and the U.S. Geological Survey. We are actively recruiting additional members from the National Science Foundation, NASA, U.S. Army Corps of Engineers, and other organizations.

The National Disaster Education Coalition focuses on raising public awareness and supporting and providing education about natural hazards, disaster preparedness, and mitigation. The following are the Coalition's goals:

- Foster cooperation and sharing of information, support, and advice among participating agencies.
- Ensure educational messages regarding natural hazards and disaster preparedness disseminated by participating agencies (in any medium) are consistent, accurate, and appropriate for the audience.
- Keep abreast of research and scientific information that may affect the content of educational materials. Advise all participating agencies of substantive information or factual evidence that may result in necessary changes to existing or new educational materials.
- Facilitate joint development of educational materials when possible and appropriate; ensure that these materials are represented as jointly-developed in public settings; and to the extent possible, ensure that joint-logoed educational materials are made available from each agency whose logo appears on the item.
- Consult with all appropriate and interested agencies before updating, revising, modifying, discontinuing, or creating educational materials.
- Ensure, to the extent possible, that jointly developed materials remain available to the public at no charge or for cost, as non-revenue generating products.
- Encourage development of multiple-format documents that can be distributed using technology such as Fax-back and the World Wide Web.
- Review product lines periodically to assess if the products reach audiences and cover the breadth of natural hazards that can happen in the United States.
- Ensure that the messages of the International Decade for Natural Disaster Reduction are appropriately incorporated in publications.

The National Coalition lives through the public education activities of local representatives, such as Warning Coordination Meteorologists, Red Cross Disaster Educators, Emergency Managers, Fire Service Educators, Seismologists, Volcanologists, and a host of others. Your ideas on what works, what doesn't work and why are important.

Have you done a public educational activity that worked especially well? Which joint-logoed materials have worked best for you? What ideas do you have about revisions, consolidations, or changes to these materials? We need to hear from you to ensure our work keeps on track and meets your needs.

We have come a long way in building our national coalition from an informal, bilateral-agency process, to a more formal, multilateral, sharing process. In my opinion, the biggest benefit of working together is to ensure that the public hears all of us "singing off the same sheet of music in harmony." There's no room for squabbling over turf or message ownership. We all are committed to public safety, yet we reach different "publics," this is a great way to offer our audiences a consistent message with dazzling materials that convey those messages and that motivate action.

We're excited and hope you will share your enthusiasm for our work and your ideas with us. Please write or call any of the coalition member agencies with your thoughts and ideas.

ARC: Rocky Lopes, lopesr@usa.redcross.org

FEMA: Ralph Swisher, Ralph.Swisher@fema.gov

NWS: Linda Kremkau, Linda.Kremkau@noaa.gov

USFA: Barbara Patasce, Barbara.Patasce@fema.gov

*Rocky Lopes, American Red Cross Convener,
National Disaster Education Coalition*

New "Hidden Danger, Low-Water Crossing" Brochure, Home Page Test

The response to "The Hidden Danger, Low-Water Crossing" video has been overwhelming! We have sent more than 1,600 VHS copies to State Emergency Management Agencies, local fire and rescue teams, the American Red Cross, Department of Transportation, driver training schools, local cable channels, the American Automobile Association, and countless other groups and individuals. To complement the video, we now have a brochure available by the same title. You can obtain it from the National Logistic Supply Center in Kansas City, MO, by requesting NOAA PA 96074.

Also, the Office of Hydrology just released an educational home page describing the dangers of low-water crossings. Take the driving test and see how much you know about low-water crossings. You will find links to such topics as buoyancy, volume, mass, and density. Included are classroom science projects. The address for the low-water crossing home page is: <http://www.noaa.gov/oh/tt/xwater/index.html>

**Larry Wenzel, Hydrologic Technician,
Office of Hydrology**

NWS Safety Pamphlets Now Available in Braille

To assist the visually impaired, I have been transcribing the NWS weather safety pamphlets into Braille. With help from Internet friends Brian Tew of Robertsdale, AL, and Keith Reedy of Terre Haute, IN, the project is well underway. Now available in Braille on a loan basis are the booklets "Tornadoes . . . Nature's Most Violent Storms" and the "Thunderstorms and Lightning . . . The Underrated Killers" (18 pages in Braille). Content of the booklets is the same as the originals except that photographs and graphs are described in words.

The next two pamphlets to be printed in Braille are "Flash Floods . . . The Awesome Power" and "Winter Storms . . . The Deceptive Killers." I plan to complete these booklets around the first of June. Depending on funding and due to the high cost of producing these booklets, only limited copies of these booklets will be produced for public distribution.

To borrow a Braille copy of "Tornadoes . . . Nature's Most Violent Storms" or "Thunderstorms and Lightning . . . The Underrated Killers," contact your Regional MSD or Linda Kremkau at Weather Service Headquarters. Any questions regarding these booklets may be directed to Carolyn Gurney, NWS Office, 2170 Overland Avenue, Billings, MT, 59102. 406-652-0851, Ext. 229.

**Carolyn Gurney, Hydrometeorological Technician
NWSO Billings, MT**

Replacement Pages Provided For 1995 Summary of Natural Hazard Statistics

OM now has available the "Summary of Natural Hazard Fatalities for 1995 in the United States." This leaflet includes deaths, injuries, and damage costs. The Customer Service Core prepared these statistics using the information from *Storm Data*. A correction was made to the first three pages of the 1995 summary that was sent out last month. (See the next three pages.) The change was made to the hail fatality column (from 2 deaths to 0 deaths).

To summarize, weather and flood-related hazards in 1995 claimed 1,362 lives, a dramatic increase over 1994's total of 388. Summer heat took the largest death toll of any natural disaster in 1995, with 1,021 heat-related deaths. The July 1995 Heat Wave at Chicago and Milwaukee was a highly rare, and in some respects, unprecedented event. Both Chicago and Milwaukee experienced its worst weather-related problems between July 11-27, 1995.

In 1995, July was the deadliest month with 948 fatalities. The majority of these deaths were the direct result of extremely high temperatures in Illinois, Wisconsin, Missouri, and Pennsylvania.

Of the 1,362 weather and flood-related fatalities, 843 were males and 519 were females. Deaths among men outnumbered deaths among women for all age groups except for those aged 70 and above.

These statistics were distributed using this *Aware Report* distribution list. For a corrected copy of the 1995 statistics, please contact me at 301-713-0090, Ext. 118 or send an e:mail to Linda.Kremkau@noaa.gov. You can access the 1995 statistics on OM Home Page:

<http://www.nws.noaa.gov/om/hazstats.htm>

Linda Kremkau, Editor, Customer Service

WSOM Chapter Updates and Aware Report Roster

Attachment A is the WSOM Chapter Updates. Attachment B is the *Aware Report* Roster that lists WCMs in each NWS Region. Telephone numbers are listed numbers for that office and not the WCM's direct telephone number. If a name or number has changed, please notify me at 301-713-0090, Ext. 118. The Roster is attached to the back at the *Aware Report* for anyone wishing to detach and use it separately. Also, if you know someone who would like to be placed on the distribution list, please have him or her contact OM's Customer Service at the telephone number above.

Linda Kremkau, Editor, Customer Service

Attachment A—Update on OM's WSOM Chapters

WSOM Chapters: Status

- B-16 **Marine Reporting Station**
To be updated in 1997.
- B-19 **Fire Weather Stations**
Will be updated and consolidated with D-06 in 1997.
- B-30 **Voluntary Observing Ship Program**
In process. Due in 1998.
- B-55 **Distribution and Use of Satellite Data**
Requires a total update; earliest draft early 1997.
- B-90 **Special Warning Program Observations**
To be updated in 1997.
- C-11 **Zone and Local Forecasts** (main section)
To be updated in 1997.
- C-11 **Zone and Local Forecasts, Appendix A**
(Zone Forecast Maps)
Appendix A issued November 5, 1996.
- C-40 **Severe Local Storm Watches, Warnings and Statements.**
An OML was issued February 1997 to update the format for the public watch narrative and conduct products to EAS. Late in the year, an OML will be issued to integrate products and services associated with Phase I of the convective watch decentralization.
- C-41 **Tropical Cyclone Program**
Will be updated in May 1997.
- C-45 **Meteorological Discussions and Forecast Coordination.**
An OML to C-45 defining the state liaison office policy is being drafted for field review for August 1997.
- C-47 **County Warning Areas, Appendix A.** Ongoing public information statements are updates. Latest appendix issued February 3, 1997.
- C-49 **Warning Coordination and Hazard Awareness**
OM's Customer Service will begin the review and update process for C-49 in early June 1997. Still in OM for review. The first draft will not reach the field until early 1998.
- C-60 **Radio/TV Dissemination;**
- C-61 **Telephone Dissemination;**
- C-62 **Newspaper Dissemination; and**
- C-67 **News Wire Dissemination**
Work will begin on updating and probably consolidating these chapters late in 1997 or early 1998.
- C-66 **Dissemination of Public Warnings**
Consolidate into chapter C-49 by early 1998.
- C-72 **National Watch/Warning Verification Program**
- C-73 **Public/Aviation Forecast Verification**
These chapters will be updated and consolidated into a single chapter during FY 97.
- D-06 **Fire Weather Services**
Will be updated in 1997 and consolidated with B-19.
OML to D-06. Duties of IR Mets Requiring Exposure to Hazardous Situations
Has been approved; due out very soon.
- D-07 **Marine Weather Services**
To be updated in 1997.

WSOM Chapters: Status

- D-20 **Aviation Area Forecasts**
Should be combined with D-35; timing to be determined.
- D-20 **Aviation Area Forecasts (OML)**
Draft dated May 28, 1996, became effective July 1 1996. OML not signed.
- D-21 **Aviation Terminal Forecasts** (Obsolete)
- D-22 **Domestic SIGMET**
Will be consolidated with D-38; timing to be determined.
- D-22 **Domestic SIGMET (OML)**
Draft dated May 28, 1996, became effective July 1 1996. OML not signed.
- D-23 **Special Aviation Forecasts and Events**
- D-24 **Wind and Temperature Aloft Forecasts**
Should be combined with D-36; timing to be determined.
- D-25 **Air Traffic Operations Support**
Chapter issued October 25, 1996.
- D-30 **Transcribed Weather Broadcast Text Products**
Draft dated June 28, 1996, effective date July 1, 1997. Final draft is in coordination for signature.
- D-31 **Aviation Terminal Forecasts**
Draft dated June 20, 1996 became effective July 16, 1997. Final draft is in coordination for signature.
- D-35 **International Area Forecasts**
Should be combined with D-20; timing to be determined.
- D-36 **International/Aviation Service Arrangements**
Should be combined with D-24; timing to be determined.
- D-37 **International Aviation Aerodrome Forecasts** (Obsolete)
Superseded by June 20, 1996 draft of D-31.
- D-38 **International SIGMET**
Will be consolidated with D-22; timing to be determined.
- D-51 **Marine Services for Coastal Offshore and High Seas**
Appendices A and B are going to be replaced by an OML in the fall of 1997.
- D-80 **Familiarization Flights**
Final draft is in coordination for signature.
- D-90 **Support for Accident Investigation and Litigation**
Chapter issued on February 19, 1997.
- D-91 **Aviation Liaison and User Support Program**
Preliminary work to update adjust and reassign the contents of these chapters has been completed. Awaiting resources to complete the job.
- F-42 **Storm Data and Related Reports**
An OML has been released to accommodate changes associated with Paradox II the new software for *Storm Data*. Other minor changes also have been included.
- F-60 **Tsunami Warning Service**
Chapter issued January 25, 1996.
- F-61 **Earthquake Reporting Program**
Chapter issued March 6, 1996.

Attachment B–WCM Roster

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Attachment B–WCM Roster

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NCDC - Storm Data

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